

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

--	--	--	--	--	--	--	--	--	--

# MULTIMEDIA UNIVERSITY

## FINAL EXAMINATION

TRIMESTER 1, 2017/2018

### TSE2101 - SOFTWARE ENGINEERING FUNDAMENTALS

(All sections / Groups)

11<sup>th</sup> OCTOBER 2017

9.00am-11.00am

(2 Hours)

---

#### INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 5 pages (including cover page) with 5 Questions only.
2. Attempt **ALL FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please print all your answers in the Answer Booklet provided.

**Question 1**

(a) Software has a dual role either as an end product or a vehicle for delivering a product.

Explain with two examples how it can be used for delivering a product. [4 marks]

(b) Software engineering is concerned with issues like security, trust, demand changes, interoperability and also ethics affecting the domain. Give TWO examples of ethical issues that have an impact on this domain. [2 marks]

(c) Compare and contrast the Scrum approach with conventional plan-based approaches in maintaining team cohesion. [4 marks]

**Question 2**

(a) An effective software process establishes the infrastructure that supports any effort at building a high quality software product as well as a useful product. Explain what does it mean by a useful product? [2 marks]

(b) Describe THREE Object Oriented integration testing strategies. [3 marks]

(c) Based on your experience with online shopping, draw a sequence diagram showing user browsing or querying items to purchase, selecting and checking out the items to be purchased, system authorizing the purchase and displaying the necessary information at every stage of the process. [5 marks]

*Continued...*

**Question 3**

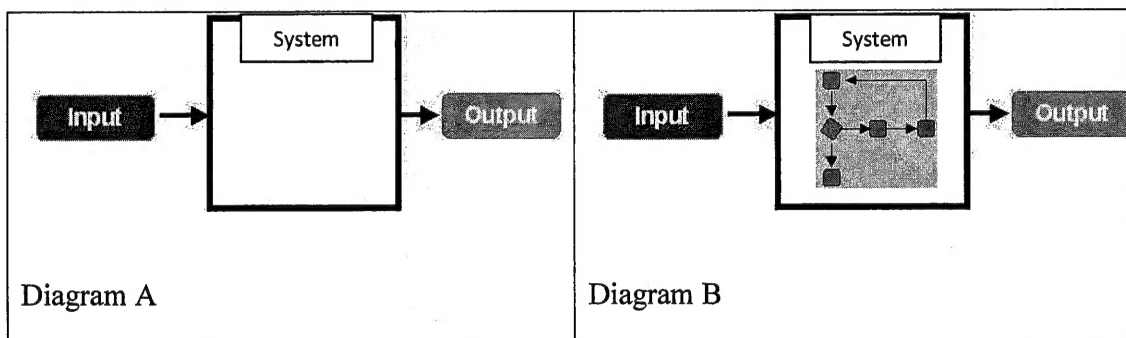
(a) What are the options to represent an algorithm at a level of detail that can be reviewed for quality? Provide an example for each option. [3 Marks]

(b) Answer the following questions based on Diagram A and Diagram B.

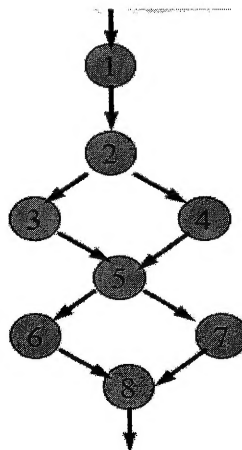
i. Identify which one represents black-box testing and which one represents white-box testing. [1 Mark]

ii. Explain your answers in question (i). [2 Marks]

iii. Provide **ONE** disadvantage for each type of testing mentioned above. [2 Marks]



(c) Identify the different paths coverage that will be created during white-box testing for the diagram below. [2 Marks]



*Continued...*

**Question 4**

(a) Explain why measurements are important in managing software projects. [2 marks]

Provide one example. [1 mark]

(b) Draw a network diagram based on following table that lists all the activities for software system project, together with their precedence requirements and durations. [5 marks]

Determine the critical path and earliest completion time for the project. [2 marks]

Code	Activity Description	Immediate Predecessor	Estimated Duration (weeks)
A	High level analysis	--	2
B	Selection of hardware and software	--	6
C	Installation and commissioning of hardware	A	3
D	Detailed analysis of core and supporting modules	C	8
E	Programming of core modules	B, C	4
F	Programming of supporting modules	D	4
G	Quality assurance of core and supporting modules	E, F	1
H	Concurrent roll-out	G	2

*Continued...*

**Question 5**

- (a) What is a Software Configuration Management Repository? [1 mark]
- (b) Why are version control and change control important in ensuring the quality of the software product? [2 marks]
- (c) List down three cases where Software Maintenance is needed. [3 marks]
- (d) A version control system implements four major capabilities. What are the four major capabilities? Explain each of them. [4 marks]

***The End***